REMARKS – General

Applicants have rewritten all claims to define the invention more particularly and distinctly so as to overcome the rejections and define the invention patentably over the prior art.

Claim 63 Rewritten
Claim 63 has been rewritten as claims 79, 85, 91 and has been completed with a period.

Claim 62 Rewritten to satisfy § 112
Claim 62 has been rewritten as claim 81. It defines the invention precisely and the phrase "such as" has been removed. In particular, the list of additional data has been provided.

Claim 66 Rewritten to satisfy § 112
Claim 66 has been rewritten as claim 93. The phrase "processing facility" has been changed to processing software. There is a large body of known software mechanisms allowing software access to the data stored in databases. Claim 93 satisfies § 112. Claims dependent on 66 now satisfy § 112.

The Rejection of Claims 57 and 66 on Tertitski is Overcome
The last O.A. rejected independent claims 57 and 66 on May referring to 35 USC §102. Claims 57 and 66 have been rewritten as Claims 75 and 93, respectively, to define patentably over this reference. Tertitski (Patent 6,493,681) teaches a method and computer program for generating stock trading strategies using a visualization technique. Applicants request reconsideration of this rejection, as now applicable to claims 75 and 93, for the following reasons:

1. Tertitski does not teach having a plurality of options characteristics for a plurality of options.
2. Neither Tertitski nor any other prior art teach a means to determine relative reference value(s) for each option in a plurality of options.
3. Neither Tertitski nor any other prior art teach a means to retrieve option data using relative reference criteria for the purpose of historical data analysis.
4. Even if Tertitski contained the features of determining relative reference values and having a means to retrieve data based on said criteria, §102 provides for identical devices having different purposes to be novel.
5. These novel features of new claims 75 and 93 produce new and unexpected results and hence are unobvious and patentable over this reference.

Tertitski Does Not Teach Having a Plurality of Options Characteristics For a Plurality of Options
Claims 75 and 93 refer specifically to options, analyzing historical option data and a plurality of option characteristics for a plurality of options. Tertitski refers precisely to "publicly traded stocks" (Abstract and again in column 1, lines 20-22). Tertitski does not refer to options, either on stocks or other instruments. Tertitski does imply the existence of an historical price database for stocks, but not options. The database and related mechanisms are not explicitly described. Tertitski teaches away from the techniques of data retrieval by focusing on the visualization techniques for a specific stock trading strategy. Applicants' invention is a method for storing and retrieving data in a manner specific to options. Applicants do not seek to claim a stock database. Options are distinct from stocks. Options require multiple characterizations for specificity including underlying security(ies), strike, put or call and expiration date. This makes options more complex to handle within a database. Furthermore, option prices and analysis depend on the relationship between option characteristics and price with the price of its underlying security(ies). Tertitski et al make no mention of options (on stocks or otherwise) in column 4, lines 2-7, or anywhere else.

Neither Tertitski Nor Any Other Prior Art Teach a Means to Determine Relative Reference Value(s) For Each Option In a Plurality of Options
Claims 75 and 93 are written as referring specifically to options and to historical analysis. Only applicants teach a means to determine "one or more relative reference value(s) for each option in the plurality of options, said relative reference value(s) being a function of one or more characteristic(s) of the option and one or more analysis characteristic(s)." That is, the applicants teach adding calculated fields (functions) to

the database that are determined using inputs that include at least one characteristic of the option and at least one additional piece of data. This new field becomes a new characteristic of every option – a reference value that is used for querying.

The last O.A. stated that Tertitski includes a means to determine a relative reference value for each option in a plurality of options and referred to column 3, lines 20-60. This section of the specification for Tertitski teaches the installation of the relevant software and the method of using historical data to back-test large numbers of trading strategies for stocks via on-screen visualization. Access to historical stock data is implied in this section, but it does not refer to options and by using implicit reference defines the technique as being publicly known art rather than new material. The method of Tertitski describes a brute force search for an historically optimized stock trading strategy using a given matrix of parameters. Tertitski does not teach the creation of new characteristics that give relative reference values.

Tertitski et al do integrate into the method and system of their invention normalized stock prices. The function is shown in Figure 2, box C. This does transform the market price of the stock into a relative price. However, while having a normalized open, high, low and close may be useful, it is not a reference value. A reference value is used for data retrieval and Tertitski uses the values for calculations. Nor is it clear what utility would be gained by some other invention using normalized stock prices. Regardless, Tertitski does not use the normalized values for data retrieval and the normalization does not refer to options.

Neither Tertitski nor any Other Prior Art Teach a Means to Retrieve Option Data Using Relative Reference Criteria for the Purpose of Historical Data Analysis

Neither Tertiski nor other known prior art reveals any means or system for querying an historical options database using relative reference criteria. In particular, a review of the figures and text of Tertitski does not give any reference to capabilities for either the storage of or retrieval of options data in any way. Nor does Tertitski provide any indication of the method used by that invention for the data retrieval that is used. Finally, Tertitski does not provide any indication of methods for referring to data via relative reference critiera.

The O.A. refers to the Tertitski specification from column 3, line 65 to column 5, line 67. This part of the specification refers to the operation of the Tertiski et al invention. There are two sub-methods that discuss relative references. The first is for obtaining price time series data and the second is the normalization of prices.

Tertitski discusses temporal references in column 4, lines 20-35. It is clear from the text that Tertitski is referring to publicly traded stocks only and not options. Including options would have required additional reference criteria which was omitted.

Tertitski et al do integrate into the method and system of their invention normalized stock prices. The function is shown in Figure 2, box C. This does transform the market price of the stock into a relative price. However, while having a normalized open, high, low and close may be useful, it is not a reference value. A reference value is used for data retrieval and Tertitski uses the values for calculations, not retrieval. Nor is it clear what utility would be gained by some other invention using normalized stock prices as a reference value for data retrieval. Regardless, Tertitski does not use the normalized values for data retrieval and the normalization does not refer to options.

Even if Tertitski contained the features of determining relative reference values and having a means to retrieve data based on said criteria, §102 provides for identical devices having different purposes to be novel

The two inventions differ in purpose. §102 allows for two inventions that would otherwise be indistinguishable to both be patentable if a new usage is given for the latter application. The purpose of the current invention is to provide a new method and computer system of analyzing option market data. The method's current preferred embodiments are meant to translate absolute strikes and expiration dates to a relative frame of reference matching market participants' needs. In particular, the preferred embodiment provides access to option market data based on different metrics of option money-ness, or deviation of the strike price from the underlying market price, and time until expiration. Whereas, Tertitski states that the

object of that invention is the determination of strategies for outperforming buy and hold investing in publicly traded stocks (column 1, 20-30).

These novel features of new claims 75 and 93 produce new and unexpected results and hence are unobvious and patentable over this reference.
Although the groundbreaking Black-Scholes equation assumes that all options for a given underlying have the same implied volatility, the market has produced different results. That is, implied volatility varies by strike. How and why that variation occurs is of considerable interest to option traders and academics. The Applicants' invention provides a method and system for finding and measuring those relationships over time.

Amongst the new and unexpected results are:

- the ability to provide measurements of volatility skew and kurtosis; that is, measuring the variation of implied volatility between strikes of the same maturity
- the ability to compare such measurements between different underlying securities and across maturities
- the ability to monitor option pricing for spreads (combinations of options) that are based on relative reference. For example, the ATM call vs. two 110% OTM calls.
- the ability to examine option characteristics based on relative time periods, e.g., days until expiration

Financial services, in general, and option trading in particular are extremely competitive businesses. Traders are continually seeking advantages over other participants. Not only are the traders seeking advantages, but there are firms which provide traders with data services that are working to distinguish themselves from other such firms. These can be very well capitalized and aggressive firms such as Bloomberg LP, Reuters and Thomson Financial. It should be noted that even though the Chicago Board Options Exchange was founded in 1973, none of these firms nor others was able to deliver such a clearly sought product prior to Applicants.

This type of product has achieved commercial success. Unfortunately, it has not been the success of the Applicants due to lack of funding. However, after both the founding of Applicants' firm and filing of this patent application, at least two firms are in the business of supplying subsets of the capabilities of the Applicants' invention. These firms are iVolatility and OptionMetrics. Bloomberg LP has recently added similar capabilities into their "Professional Product."

The invention solves a long felt and unsolved need. Reviewing price charts is widely practiced by traders and the community has sought such data for option markets. In addition, prior to the invention, much of the historical option price action memory has been concentrated in the locals who make markets on those options. The invention provides other traders perspective in the markets they wish to trade so that those traders have a necessary level of knowledge to act. Risk managers have shown interest in the invention to properly margin traders and to gain insight into market activity.

Rejection of Claim 58 on Tertitski is Overcome
Claim 58 has been added as claims 76, 82, 88 and parallel claims 94, 100, 106. The last O.A. states that "Tertitski et al disclose the options in the plurality of options are equity options or equity linked securities having embedded options. Equity options or equity linked securities are inherent types of options in the system of Tertitski et al." The O.A. does not list the location of the text or figures where this is shown by Tertitski et al. The applicants have failed to find a relevant passage showing Tertitski et al have disclosed any mention of options. In addition, Tertitski makes it clear in the abstract and column 1, lines 20-30 that the invention is narrowly constructed for publicly traded stocks.

Rejection of Claim 59 on Tertitski is Overcome
Claim 59 has been re-submitted as claims 77, 83, 89 and parallel claims 95, 101, 107. The last O.A. stated that, "Tertitski et al disclose the options in the plurality of options are contracts based on a comprehensive set of underlying instruments. Contracts options based on a comprehensive set of underlying instruments is inherent in the system of Tertitski et al so as to include all types of options in the system of Tertitski et al."

The O.A. does not list the location of the text or figures where this is shown by Tertitski et al. The applicants have failed to find a relevant passage showing Tertitski et al have disclosed any mention of options. In addition, Tertitski makes it clear in the abstract and column 1, lines 20-30 that the invention is narrowly constructed for publicly traded stocks.

Rejection of Claim 60 on Tertitski is Overcome
Claim 60 has been re-submitted as claims 78, 84, 90 and parallel claims 96, 102, 108. The last O.A. states that, "Tertitski et al disclose the step of determining the calculated option characteristics comprises determining an implied volatility for each option in the plurality of options. Such is an inherent feature in the system of Tertitski et al." Column 3 is given as a reference. The applicants have failed to find a relevant passage showing Tertitski et al have disclosed any mention of options. Several characteristics are necessary to calculate implied volatility, including strike price, asset price and asset cash flows. These characteristics are not mentioned in column 3 nor elsewhere in Tertitski et al. Additionally, an appropriate interest rate is necessary for the implied volatility calculation. Again, this data is not mentioned in Tertitski et al.

Rejection of Claim 63 on Tertitski is Overcome
Claim 63 has been re-submitted as claims 79, 85, 91 and parallel claims 97, 103, 109. The last O.A. recited claim 63 stating that Tertitski et al disclose such a method in columns 4 and 5. Applicants were unable to find mention of options, interpolation, extrapolation or option characteristics. The normalization process is reviewed in column 4, lines 22-35, but normalization is different from interpolation and extrapolation. There is no mention of integrating multiple pieces of raw data into a single summary piece of data (via interpolation or extrapolation) in Tertitski et al.

Rejection of Claim 64 on Tertitski is Overcome
Claim 64 has been rewritten as claim 80, 86, 92 and parallel system claims 98, 104, 110. The claim has changed the phrase "mathematical function" to "arbitrary mathematical function." Applicants are unable to find reference to options in Tertitski et al overcoming §102 objections. As Tertitski et al does pre-set mathematical operations on stock prices, the claim further differentiates by adding the term "arbitrary" to specify the ability of the invention to provide output of data using various mathematical functions.

Claims 61 and 70 are Rejected under § 103
Claims 61 and 70 have been withdrawn.

Claims 62, 65, 71 and 74 Rewritten as Independent Claims To Become Allowable Subject Matter
The last O.A. stated that claims 62, 71 and 74 would be allowable subject matter if rewritten to overcome §112 objections and as independent claims that include all of the limitations of the base claim and any intervening claims. The O.A. also states that claim 65 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

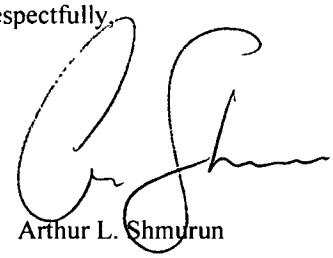
Claims 62, 65, 71 and 74 have been rewritten as claims 81, 87, 99 and 105 respectively. All are now independent claims that incorporate all of the limitations of the base claim and intervening claims with small exception. The phrase "storing in a database" has been changed to "storing." And the restriction requiring the invention to "store in a database a plurality of underlying instrument characteristics" has been dropped.

Conclusion
For all of the above reasons, applicants submit that the specification and claims are now in proper form and that the claims all define patentably over the prior art. Therefore, they submit that this application is now in condition for allowance, which action they respectfully solicit.

Conditional Request for Constructive Assistance
Applicants have amended the specification and claims of this application so they are proper, definite and define novel structure which is also unobvious. If, for any reason, this application is not believed to be in full condition for allowance, applicants respectfully request the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. § 2173.02 and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

Ari Pine



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